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Applicant: Lin Zhi et al.

Serial No.: 10/684,229

Filed: October 10, 2003

Cust. No. : 20985

Title

Art Unit : 1625

Examiner: Charanjit Aulakh

Patent No.: 7,071,205

Issue Date: July 4, 2006

: 5-Cycloalkenyl 5H-Chromeno[3,4-f]Quinoline Derivatives as Selective

Progesterone Receptor Modulator Compounds

Ms. Michelle Williams

Certificate of Corrections Branch P.O. Box 1450 Alexandria, VA 22313-1450

Dear Ms. Williams:

Further to our telephone conversation on 8 February 2007, a hand-corrected version of the Certificate of Correction for the above captioned patent is attached. Please note the errors introduced by the PTO on the following pages:

On page 1, in the definition of R¹, please replace "CO₂R¹¹, CO₂R¹¹" with -COR¹¹, CO₂R¹¹-

On page 8, in compound 73, please replace "eyclopentenyl" with -cyclopentenyl-

On page 9, in compound 85, please replace "diffuoro" with -diffuoro-

On page 9, in compound 87, please replace "cyclohexyl" with -cyclohexyl-

Patentee respectfully requests correction of these errors.

Date: February 8, 2007

Nathanael R. Luman

Scientific Advisor to

Stephanic Seidman Reg. No. 33,779

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PATENT NO.

: 7,071,205 B2

Page 1 of 10

APPLICATION NO. : 10/684229

: 10/684229 : July 4, 2006

DATED INVENTOR(S)

: Lin Zhi ct al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

IN THE TITLE PAGES:

In Item [56] References Cited, in U.S. PATENT DOCUMENTS: please add the following reference: --6,001,846 A 12/1999 Edwards et al. 514/285-in 6,566,358 please replace "Zhi et al." with --Zhang et al.—in 6,566,372 please replace "West et al." with --Zhi et al.--

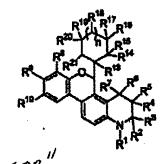
In Item [56] References Cited, in OTHER PUBLICATIONS: in Hamann et al., please replace "dihyrdo" with -dihydro-

At column 8, Table A, row R¹, please replace "C₁-C haloalkyl" with --C₁-C₄ haloalkyl-at column 9, Table A, row R⁹, please replace "CONR^HR¹²" with --CONR^HR¹²—at column 11, Table A, below row R¹⁶, please replace "R¹⁵" with --R¹⁶--

Please replace Claims 12, 13, 14, and 15 with the following Claims:

Col. 40

12. A compound of the formula:



(I)

wherein:

R¹ is selected from the group of hydrogen, C₁-C₄ alkyl, C₁-C₄ haloalkyl, C₁-C₄ heteroalkyl, CO₂R¹¹, CO₂R¹¹, SO₂R¹¹, and CONR¹¹R¹²;

R² and R³ each independently is selected from the group of hydrogen, C₁-C₆ alkyl, and C₁-C₆ haloalkyl; or

R² and R³ taken together form a cycloalkyl ring of from three to twelve carbons; R⁴ through R⁷ each independently is selected from the group of hydrogen, F, C1, Br,

CN, OR¹¹, C₁-C₄ alkyl, C₁-C₄ haloalkyl, and C₁-C₄ heteroalkyl; or

R⁵ and R⁷ taken together form a bond; or

R⁶ and R⁷ taken together are selected from the group of methylidene, mono-substituted methylidene, di-substituted methylidene and carbonyl;

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APPLICATION NO. : 10/684229 DATED

: July 4, 2006

INVENTOR(S)

: Lin Zhi et al.

It is certified that error appears in the above-identified patent and that said Lotters Patent is hereby corrected as shown below:

 R^8 through R^{10} each independently is selected from the group of hydrogen, F, Cl, Br, I, NO₂, CN, OR¹¹, NR¹¹R¹², SR¹¹, COR¹¹, CO₂R¹¹, CONR¹¹R¹², C₁-C₈ alkyl, C₁-C₈ heteroalkyl, C₁-C₈ haloalkyl, allyl, C₂-C₈ alkenyl and C₂-C₈ alkynyl; R¹¹ and R¹² each is independently selected from the group of hydrogen, C₁-C₄ alkyl,

 C_1-C_4 heteroalkyl, and C_1-C_4 haloalkyl;

R¹³ is hydrogen;

R¹⁴ and R¹⁶ taken together form a bond or "-O-" bridge; R¹⁵, R¹⁷, R¹⁸, R¹⁹, R²⁰ each independently is selected from the group of hydrogen, F, Cl, C₁-C₄ alkyl, and C₁-C₄ haloalkyl;

R21 is hydrogen; and

n is 0, 1, 2, or 3;

or a pharmaceutically acceptable salt thereof.

Col. 41

13. A compound of the formula:

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DATED

: July 4, 2006

INVENTOR(S)

: Lin Zhi et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

wherein:

R¹ is selected from the group of hydrogen, C₁-C₄ alkyl, C₁-C₄ haloalkyl, C₁-C₄ heteroalkyl, COR11, CO2R11, SO2R11, and CONR11R12;

R² and R³ each independently is selected from the group of hydrogen, C₁-C₆ alkyl, and C1-C6 haloalkyl; or

R² and R³ taken together form a cycloalkyl ring of from three to twelve carbons;

R4 through R7 each independently is selected from the group of hydrogen, F, Cl, Br, CN, OR^{11} , C_1-C_4 alkyl, C_1-C_4 haloalkyl, and C_1-C_4 heteroalkyl; or

R⁵ and R⁷ taken together form a bond; or

R⁶ and R⁷ taken together are selected from the group of methylidene, mono-substituted methylidene, di-substituted methylidene and carbonyl;

R⁸ through R¹⁰ each independently is selected from the group of hydrogen, F, Cl, Br, I, NO₂, CN, OR¹¹, NR¹¹R¹², SR¹¹, COR¹¹, CO₂R¹¹, CONR¹¹R¹², C₁-C₈ alkyl, C₁-C₈ heteroalkyi, C₁-C₈ haloalkyi, allyl, C₂-C₈ alkenyi and C₂-C₈ alkynyi;

R¹¹ and R¹² each is independently selected from the group of hydrogen, C₁-C₄ alkyl, C₁- C₄ heteroalkyl, and C₁-C₄ haloalkyl;

R¹³ is hydrogen;

R¹⁴, R¹⁵, R¹⁸, R¹⁹, R²⁰ each independently is selected from the group of hydrogen, F, Cl, C₁-C₄ alkyl, and C₁-C₄ haloalkyl;

R¹⁶ and R¹⁷ taken together are selected from the group of methylidene, mono-substituted methylidene, and di-substituted methylidene;

R²⁾ is hydrogen; or

R²¹ and R²⁰ taken together form a bond;

n is 0, 1, 2, or 3;

or a pharmaceutically acceptable salt thereof.

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APPLICATION NO.: 10/684229

DATED INVENTOR(S) : July 4, 2006

: Lin Zhi et al.

it is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Col. 42

14. A compound of the formula:

(I)

wherein:

R¹ is selected from the group of hydrogen, C₁-C₄ alkyl, C₁-C₄ haloalkyl, C₁-C₄ heteroalkyl, COR¹¹, CO₂R¹¹, SO₂R¹¹, and CONR¹¹R¹²;

R² and R³ each independently is selected from the group of hydrogen, C₁-C₆ alkyl, and C1-C6 haloalkyl; or

R² and R³ taken together form a cycloalkyl ring of from three to twelve carbons;

R4 through R7 each independently is selected from the group of hydrogen, F. Cl, Br, CN, OR11, C1-C4 alkyl, C1-C4 haloalkyl, and C1-C4 heteroalkyl; or

R5 and R7 taken together form a bond; or

R⁶ and R⁷ taken together are selected from the group of methylidene, mono-substituted methylidene, di-substituted methylidene and carbonyl;

R⁸ through R¹⁰ each independently is selected from the group of hydrogen, F, Cl, Br, I, NO₂, CN, OR¹¹, NR¹¹R¹², SR¹¹, COR¹¹, CO₂R¹¹, CONR¹¹R¹², C₁-C₈ alkyl, C₁-C₈ heteroalkyl, C₁-C₈ haloalkyl, allyl, C₂-C₈ alkenyl and C₂-C₈ alkynyl;

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: 7.071205 B2

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APPLICATION NO. : 10/684229 DATED

: July 4, 2006 INVENTOR(S) : Lin Zhi et al.

> It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

R¹¹ and R¹² each is independently selected from the group of hydrogen, C₁-C₄ alkyl, C₁-C₄ heteroalkyl, and C₁-C₄ haloalkyl;

R¹³ is hydrogen;

R¹⁴, R¹³, R¹⁷, R²⁰ each independently is selected from the group of hydrogen, F, Cl, C₁-

C₄ alkyl, and C₁-C₄ haloalkyl;

R¹⁶ and R¹⁸ taken together form a bond when n is 1;

R¹⁶ and R¹⁹ taken together form a bond when n is 0;

R²¹ is hydrogen; and

n is 0, 1, 2, or 3;

or a pharmaceutically acceptable salt thereof.

Col. 42-45

15. A Compound selected from the group of:

(±)-(51,1'1)-5-(3-methyl-2-cyclohexenyl)-9-fluoro-1,2-dihydro-2,2,4-trimethyl-5H-

chromeno[3,4-f]quinoline (compound 24);

(±)-(51,1'u)-5-(3-methyl-2-cyclohexenyl)-9-fluoro-1,2-dihydro-2,2,4-trimethyl-5H-

chromeno[3,4-f]quinoline (compound 25); (+)-(51,1'1)-5-(3-methyl-2-cyclohexenyl)-9-fluoro-1,2-dihydro-2,2,4-trimethyl-5H-

chromeno[3,4-f]quinoline (compound 27);

(-)-(51,1'1)-5-(3-methyl-2-cyclohexenyl)-9-fluoro-1,2-dihydro-2,2,4-trimethyl-5H-

chromeno[3,4-f]quinoline (compound 28); (±)-(51,1'1)-5-(3-methyl-2-cyclohexenyl)-9-hydroxy-1,2-dihydro-2,2,4-trimethyl-5H-

chromeno[3,4-f]quinoline (compound 29);

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: July 4, 2006 INVENTOR(S) : Lin Zhi et al.

- (\pm) -(51,1'u)-5-(3-methyl-2-cyclohexenyl)-9-hydroxy-1,2-dihydro-2,2,4-trimethyl-5Hchromeno[3,4-f]quinoline (compound 30);
- (+)-(51,1'1)-5-(3-methyl-2-cyclohexenyl)-9-hydroxy-1,2-dihydro-2,2,4-trimethyl-5Hcbromeno[3,4-fjquinoline (compound 32);
- (-)-(51,1'1)-5-(3-methyl-2-cyclohexenyl)-9-hydroxy-1,2-dihydro-2,2,4-trimethyl-5Hchromeno[3,4-fiquinoline (compound 33);
- (±)-(51,1'1)-5-3-methy1-2-cyclohexeny1)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5Hchromeno[3,4-f]quinoline (compound 34);
- (\pm) -(51,1'u)-5-(3-methyl-2-cyclohexenyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5Hchromeno[3,4-f]quinoline (compound 35);
- (+)-(51,1'1)-5-(3-methyl-2-cyclohexenyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5Hchromeno[3,4-f]quinoline (compound 37);
- (-)-(51,1'1)-5-(3-methyl-2-cyclohexenyl)-7,9-diffuoro-1,2-dihydro-2,2,4-trimethyl-5Hchromeno[3,4-f]quinoline (compound 38);
- (±)-(51,1'1)-5-(3-methyl-2-cyclohexenyl)-9-methoxy-1,2-dihydro-2,2,4-trimethyl-5Hchromeno[3,4-f]quinoline (compound 39);
- (±)-(51,1'1)-5-(3-methyl-2-cyclohexenyl)-9-fluoro-1,2-dihydro-2,2-dimethyl-5Hchromeno[3,4-f]quinoline (compound 41);
- (±)-(51,1'u)-5-(3-methyl-2-cyclohexenyl)-9-fluoro-1,2-dihydro-2,2-dimethyl-5Hchromeno[3,4-f]quinoline (compound 42);
- (±)-(51,1'1)-5-(3-methy1-2-cyclopenteny1)-9-fluoro-1,2-dihydro-2,2,4-trimethyl-5Hchromeno[3,4-f]quinoline (compound 44);
- (±)-(51,1'u)-5-(3-methyl-2-cyclopentenyl)-9-fluoro-1,2-dihydro-2,2,4-trimethy-5Hchromeno[3,4-f]quinoline (compound 45);

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: July 4, 2006

INVENTOR(S)

: Lin Zhi et al. .

- (±)-(51,1'1)-5-(3,5,5-trimethyl-2-cyclohexenyl)-9-fluoro-1,2-dihydro-2,2,4-trimethyl-5Hchromeno[3,4-f]quinoline (compound 47);
- (±)-(51,1'u)-5-(3,5,5-trimethyl-2-cyclohexenyl)-9-fluoro-1,2-dihydro-2,2,4-trimethyl-5Hchromeno[3,4-f]quinoline (compound 48);
- (±)-(51,1'1)-5-(3-methyl-2-cyclopentenyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5Hchromeno[3,4-f]quinoline (compound 50);
- (±)-(51,1'u)-5-(3-methyl-2-cyclopentenyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5Hchromeno[3,4-f]quinoline (compound 51);
- (±)-5-(3-methyl-3-cyclopentenyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5Hchromeno[3,4-f]quinoline (compound 52);
- (±)-5-(2-cyclopenta-1,3-dienyl)-9-fluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4f]quinoline (compound 53);
- (±)-(51,1'1)-5-(3-ethy1-2-cyclohexeny1)-9-fluoro-1,2-dihydro-2,2,4-trimethyl-5Hchromeno[3,4-f]quinoline (compound 55);
- (±)-(51,1'u)-5-(3-ethyl-2-cyclohexenyl)-9-fluoro-1,2-dihydro-2,2,4-trimethyl-5Hchromeno[3,4-f]quinoline (compound 56);
- (±)-(51,1'1)-5-(3-methyl-2-cyclohexenyl)-7-fluoro-1,2-dihydro-2,2,4-trimethyl-5Hchromeno[3,4-f]quinoline (compound 58);
- (±)-(51,1'u)-5-(3-methy1-2-cyclohexeny1)-7-fluoro-1,2-dihydro-2,2,4-trimethy1-5Hchromeno[3,4-f]quinoline (compound 59);
- (±)-(51,1'1)-5-(3-ethyl-2-cyclohexenyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5Hchromeno[3,4-f]quinoline (compound 61);
- (±)-(51,1'1)-5-(3-ethylidenecyclohexyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5Hchromeno[3,4-f]quinoline (compound 62);

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: July 4, 2006

INVENTOR(S)

; Lin Zhi ct al.

- (±)-(51,1'1)-5-(3-methyl-3-cyclohexenyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5Hchromeno[3,4-f]quinoline (compound 63);
- (±)-(51,1'1)-5-(3-methyl-2-cyclobexenyl)-9-fluoro-1,2-dihydro-8-methoxy-2,2,4trimethyl-5H-chromeno[3,4-f]quinoline (compound 64);
- (\pm) -(51,1'u)-5-(3-methyl-2-cyclohexenyl)-9-fluoro-1,2-dihydro-8-methoxy-2,2,4trimethyl-5H-chromeno[3,4-f]quinoline (compound 65);
- (±)-(51,1'1)-5-(2-cyclopentenyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5Hchromeno[3,4-f]quinoline (compound 67);
- (±)-(51,1'u)-5-(2-cyclopentenyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5Hchromeno[3,4-f]quinoline (compound 68);
- (±)-5-(1-cyclopentenyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4f]quinoline (compound 69);
- (±)-(51,1'1)-5-(2,3-dimethyl-2-cyclopentenyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 71); コ Cyclopenteny/
- (+)-(51,1'1)-5-(2,3-dimethyl-2@yclopentenyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 73);
- (-)-(51,1'1)-5-(2,3-dimethyl-2-cyclopentenyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 74);
- (±)-(51,1'1)-5-(2-cyclohexenyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5Hchromeno[3,4-f]quinoline (compound 75);
- (±)-(51,1'u)-5-(2-cyclohexenyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5Hchromeno[3,4-f]quinoline (compound 76);
- (±)-(51,1'1)-5-(2-cyclohexenyl)-7,9-difluoro-1,2,3,4-tetrahydro-2,2-dimethyl-4methylidene-5H-chromeno[3,4-f]quinoline (compound 77);

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DATED INVENTOR(S) : July 4, 2006

: Lin Zhi et al.

- (±)-(51,1'1)-5-(2-methylidenecyclohexyl)-9-fluoro-1,2-dihydro-2,2,4-trimethyl-5Hchromeno[3,4-f]quinoline (compound 79);
- (±)-(51,1'u)-5-(2-methylidenecyclohexyl)-9-fluoro-1,2-dihydro-2,2,4-trimethyl-5Hchromeno[3,4-f]quinoline (compound 80);
- (±)-(51,1'1)-5-(2-oxocyclohexyl)-9-fluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4flquinoline (compound 81);
- (±)-(51,1'u)-5-(2-oxocyclohexyl)-9-fluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4f]quinoline (compound 82);
- (±)-(51,1'1)-5-(3-methyl-2-cyclohexenyl)-9-methoxy-1,2-dihydro-1,2,2,4-tetramethyl-5Hchromeno[3,4-f]quinoline (compound 83);
- (±)-5-(2-cyclohexenyl)-9-fluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 84); diffuoro
- (\pm) -(51,1'1)-5-(2,3-dimethyl-2-cyclohexenyl)-7,9(difiuoro)1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 85);
- (±)-5-(3-methylidene cyclohexyl)-7,9-diffuoro-1,2-dihydro-2,2,4-trimethyl-5Hchromeno[3,4-f]quinoline (compound 87); = cyclohexyl
- (±)-(51,1'u)-5-(3-ethylidenecyclohexyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5Hchromeno[3,4-f]quinoline (compound 88);
- (±)-(51,1'1)-5-(2-cyclohepteny1)-7,9-diffuoro-1,2-dihydro-2,2,4-trimethy1-5Hchromeno[3,4-f]quinoline (Compound 89);
- (±)-(51,1'1)-5-(2-cyclooctenyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5Hchromeno[3,4-f]quinoline (Compound 91);
- (±)-(51,1'u)-5-(2-cyclooctenyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5Hchromeno[3,4-f]quinoline (Compound 92);

PATENT NO.

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APPLICATION NO.: 10/684229

DATED INVENTOR(S)

: July 4, 2006 : Lin Zhi et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

(±)-(51,1'1)-5-(2,3-epoxy-3-methylcyclohexyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (Compound 94);

(±)-(51,1'1)-5-(3-methyl-2-cyclohexenyl)-7,9-difluoro-1,2,3,4-tetrahydro-2,2-dimethyl-4methylene-5H-chromeno[3,4-f]quinolin-3-ol (Compound 95);

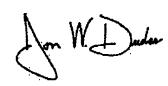
(±)-(51,1'1)-5-(2,3-epoxy-2,3-dimethylcyclopentyl)-7,9-difluoro-1,2-dihydro-2,2,4trimethyl-5H-chromeno[3,4-f]quinoline (Compound 96);

(±)-(51,1'u)-5-(2,3-epoxy-3-methylcyclohexyl)-7,9-difluoro-1,2-dihydro-2,2,4trimethy1-5H-chromeno[3,4-f]quinoline (Compound 97); and

(±)-(51,1'1)-5-(3-methyl-2-cyclohexenyl)-7,9-difluoro-1,2,3,4-tetrahydro-2,2-dimethyl-5H-chromeno[3,4-f]quinolin-4-one (Compound 98).

Signed and Sealed this

Twenty-eighth Day of November, 2006



JON W. DUDAS Director of the United States Patent and Trademark Office



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